

2001 Trial Transcripts

Part 7

which also has Bates [21] number HSA 966910.

[22] And let me ask Mr. Schlaifer to [23] blowup — first of all, do you have this page in [24] front of you, sir?

Page 1566

[1] A: 118?

[2] Q: Yes.

[3] A: Yes.

[4] Q: Do you see something that looks like [5] what's on the board there?

[6] A: Yes.

[7] Q: Let me ask Mr. Schlaifer to blowup the [8] middle of those three boxes. You see this, this [9] is — do you see at the bottom it says, "control [10] system overview," the bottom of the figure, sir?

[11] A: Yes.

[12] Q: Okay. And do you see that there is the [13] control system overview here for the fuel control [14] system, that's what's at top?

[15] A: Yes.

[16] Q: And the IGV control is what's at the [17] bottom?

[18] A: Yes.

[19] Q: And in the middle is BCV control; right, [20] sir?

[21] A: Right.

[22] Q: And that is the surge control system; [23] correct?

[24] A: That's what controls the BCV bleed.

Page 1567

[1] control valve, yes.

[2] Q: And the bleed control valve is there to [3] prevent the 3200 from going into surge, correct?

[4] A: Right.

[5] Q: This diagram, which is a little bit hard [6] to read, this is actually the same diagram as — [7] without the color as what Mr. Muller —

[8] MR. PUTNAM: Can I turn this off [9] without messing anything up? Perfect.

[10] BY MR. PUTNAM:

[11] Q: This is the same diagram in terms of the [12] text of it as what Mr. Muller was using during his [13] testimony. Do you recognize that, sir?

[14] A: Yes.

[15] Q: And for instance, the labels here and the [16] inputs here, those are all what Sundstrand itself [17] says is part of its bleed control valve control [18] system; correct?

[19] A: Yes.

[20] Q: And one of the inputs into the Sundstrand [21] surge control system, according to the Sundstrand [22] doc-

uments, is inlet guide vane position, correct?

[23] A: It says its an input in the BCV control, [24] control system.

Page 1568

[1] Q: Okay, sir. Let me ask you if you would [2] in that same document, Plaintiff's Exhibit 63, to [3] turn back to page 62, which is HSA 96854, and let [4] me ask Mr. Schalifer to blowup where it says [5] 3.3.4.4 and the paragraph under that.

[6] Have you found that page yet?

[7] A: 62? Yes, I have that page.

[8] Q: And do you see the part that we have [9] blown up and put on the board there, sir?

[10] A: I do.

[11] Q: And this is talking about the surge [12] control system for the APS 3200; correct?

[13] A: It says "load compressor BCV control".

[14] Q: And then the text says the ECB shall [15] operate the modulating control valve to maintain [16] surge free operation of the load compressor, the [17] control algorithms and logic are specified in [18] figures 12a through 12d, correct?

[19] A: Correct.

[20] Q: Now, when we talk about the APS 3200's [21] surge control system, we're talking about the [22] logic specified in figures 12a through 12d; [23] correct?

[24] A: Well, it doesn't say that. It says "BCV

Page 1569

[1] control".

[2] Q: Do you understand a difference between [3] BCV control and surge control?

[4] A: Yes. There is a difference.

[5] Q: Sir, can you tell me where else in this [6] document Sundstrand talks about the surge control [7] for the APS 3200?

[8] A: Surge control is contained in this part [9] of the document, yes.

[10] Q: Okay. Now, when it says figures 12a [11] through 12d, that actually refers to, it says, [12] figure 12a, 12b, 12d, and 12d to the four figures [13] that are sort of blocked out on the diagram that [14] we labeled before as PTX 953; correct?

[15] A: Correct.

[16] Q: And the box where inlet guide vane [17] position goes into, can you tell me what the [18] Honeywell, I'm sorry, what the Sundstrand business [19] record calls that box in is overview of the surge [20] control system?

[21] A: Well, the diagram says surge control [22] choked flow compensation log-

ic.

[23] Q: When you say the diagram says that, sir, [24] that is the diagram created by Sundstrand to

Page 1570

[1] describe its own control system; correct?

[2] A: Yes, that's correct.

[3] Q: Okay. And sir, do you see the inputs [4] coming in on the left-hand side of the diagram?

[5] MR. PUTNAM: Mr. Schlaifer could we [6] have that screen.

[7] Q: Do you see the inputs coming in the [8] left-hand side of the diagram?

[9] A: Yes.

[10] Q: And those are D E element P, PS, T2, Ps, [11] and inlet guide vane position; correct?

[12] A: You're referring to the entire diagram or [13] simply the lower left-hand block.

[14] Q: The entire overview of the Sundstrand [15] surge control system from the Sundstrand business [16] records?

[17] A: So, you're including all the inputs on [18] the left?

[19] Q: Yes, sir.

[20] A: Yes, I agree with that.

[21] Q: Would you agree with me, sir, that in the [22] APS 3200 surge control system, the parameters [23] DELP, PS, T2 and P2, and inlet guide vane position [24] are each measured at least 25 times per second,

Page 1571

[1] each second that the APS 3200 is operating?

[2] A: I believe that's true, yes.

[3] Q: Okay. And so the APS 3200 surge control [4] system is constantly monitoring each of those [5] parameters; correct?

[6] A: Yes.

[7] Q: And in the case of inlet guide vane [8] position, for instance, if we put up figure 12b, [9] Mr. Schlaifer, if you could put that up on the [10] board as well, because I know the jury can't see [11] all this, do you recognize that as the figure 12b [12] that is a sort of summary of what comes down in [13] this part of the chart here, sir?

[14] A: Yes, I do.

[15] Q: If we put up figure 12b, the figure that [16] Sundstrand engineers who were putting together [17] their diagram called, surge control choked flow [18] compensation logic, if we look next to inlet guide [19] vane position, do you see where it says "update [20] rate 40 MSEC"?

[21] A: Yes, I see that.

[22] Q: And that means that every 40 [23] milliseconds, the APS 3200 surge control system is [24] measuring inlet guide vane position; correct?

Page 1572

[11] A: Correct.

[12] Q: And every 40 milliseconds, a millisecond [3] is a thousandth of a second, correct?

[13] A: Correct.

[14] Q: So an update rate of 40 millisecond means [15] 25 times per second; correct?

[15] A: Yes.

[16] Q: So the APS 3200 surge control system, [17] every second that any one of these 3200's is [18] operating is measuring the position of the inlet [19] guide vanes 25 times each second; correct?

[17] A: Correct.

[18] Q: All right. Let's talk about what it's [19] doing with that information. Now, I think you [20] said during your testimony, and the jury has heard [21] it from other witnesses as well, that the APS 3200 [22] has a high-flow mode and a low-flow mode; correct?

[19] A: Correct.

[20] Q: Actually, Mr. Schlaifer, go ahead and put [21] that up for now.

[21] And I know you used on Friday the [22] example of a cruise control system about — to [23] illustrate for the jury the importance of knowing [24] whether the system was in high flow or low flow.

Page 1573

[11] Do you remember that testimony from last Friday?

[2] A: Yes, I do.

[3] Q: And I think what you said is if you had [4] this high flow, low flow problem on a cruise [5] control system, the system might think that you [6] were slowing down and therefore would give more [7] gas to speed up when, in fact, you weren't slowing [8] down, so you didn't need more gas to make the [9] cargo even aster, that is the general idea?

[10] A: The idea was expressed in the context [11] that if you had a speedometer that was a [12] double-valued or double-solution device, that when [13] you went past the peak of the speedometer it would [14] read backwards and therefore cause the cruise [15] control system to fail in that way, yes.

[16] Q: And if you were driving in a car, I take [17] it it would be dangerous if the cruise control [18] system failed in that way and went much faster [19] than you wanted to go; correct?

[17] A: That certainly would be dangerous, yes.

[18] Q: So in the APS 3200, I take it what

your [22] point is, or your point was on Friday, is that it [23] is important for Sundstrand to be able to [24] determine whether it's in high-flow or in low-flow

Page 1574

[11] mode, correct?

[12] A: That is correct.

[13] Q: And it's important for the Sundstrand APS [14] 3200 surge control system to know whether it's in [15] high-flow mode or low-flow mode; correct?

[14] A: Yes. Okay, I would agree with that.

[15] Yes.

[16] Q: In fact, every second that the APS 3200 [17] is operating, it's making this determination about [18] whether it is in high-flow mode or low-flow mode [19] approximately 25 times per second; correct?

[17] A: Yes.

[18] Q: So on the video, we saw it gradually [19] going up to high flow and then gradually coming [20] down, but in the actual APS 3200, 25 times per [21] second the system is doing this calculation and [22] checking to determine whether or not it's in high [23] flow or low flow; correct?

[19] A: Correct.

[20] Q: Now, one of the factors that the APS 3200 [21] monitors to determine whether it's in high flow or [22] low flow is the position of the inlet guide vanes; [23] correct?

[24] A: Correct.

Page 1575

[11] Q: Specifically in the APS 3200 surge [12] control system, inlet guide vane position is used [13] to insure that the system is not sent into [14] low-flow mode when it actually should remain in [15] high-flow mode; correct?

[16] A: That's correct.

[17] Q: That's what measuring the inlet guide [18] vane position does in the APS 3200 surge control [19] system; correct?

[18] A: Correct.

[19] Q: And as we talked about earlier, it's [20] important that the 3200 surge control system [21] correctly determine whether it's in high-flow mode [22] or low-flow mode for the proper operation of that [23] system; correct?

[20] A: Correct.

[21] Q: All right. Let me ask you — actually, [22] ask Mr. Schlaifer to put up on the board Claim 4 [19] of the '194 patent, and in particular clause D of [20] Claim 4, which the jury has heard some testimony [21] about.

[22] First of all, do you recognize this [23] as clause D of Claim 4 of the '194 patent; sir?

[23] A: I do.

Page 1576

[1] Q: Now, a number of times during your [2] testimony, both on Friday and this morning, you [3] referred to this idea of a set point, and you said [4] words to the effect of, well, the way the patents [5] work is it uses inlet guide vane position to [6] effect the set point.

[7] Do you remember generally that [8] testimony, sir?

[9] A: I do.

[10] Q: Now, you understand that patent [11] infringement depends on what the claims of the [12] Honeywell patents say, correct?

[13] A: I understand that, yes.

[14] Q: And you understand that when the jury is [15] considering patent infringement, they're going to [16] need to consider the claims at issue one at a [17] time, and say looking at this one claim does the [18] APS 3200 have all of the elements in this [19] individual claim. Understand that, right?

[20] A: I understand that.

[21] Q: In other words, they need to look at it [22] on a claim-by-claim basis; correct?

[22] A: Correct.

[23] Q: Can you tell me, sir, if the word "set

Page 1577

[1] point," the phrase "set point" appears anywhere in [2] clause D of Claim 4 of the '194 patents?

[3] A: It does not.

[4] Q: And you have the '194 patent there so [5] you're welcome to look if you need to, can you [6] tell me if the phrase "set point" appears anywhere [7] in Claim 4 of the '194 patent?

[8] A: It does not.

[9] Q: So that testimony you gave about the set [10] point and what the 3200 does with its set point, [11] that doesn't apply when the jury is looking at [12] Claim 4, correct?

[13] A: Correct.

[14] Q: Now, let's have this language on the [15] screen, with the language let me ask you some [16] questions.

[17] Would you agree with me that in the [18] APS 3200 surge control system is in low-flow mode, [19] there is a particular relationship between the [20] DELQP parameter and the operation of the surge [21] bleed valve?

[22] A: Correct.

[23] Q: And would you agree with me that if the [24] APS 3200 surge control system is in high-flow

Page 1578

[1] mode, there is no relationship bet-

ween the DELPQP [2] parameter and operation of the surge bleed valve?

[3] MR. HERRINGTON: Your Honor, I would [4] object. Object to the extent Mr. Putnam is [5] suggesting he's stating the language of element D, [6] he's now departed from the language of element D [7] and asked a different question.

[8] THE COURT: Would you rephrase it, [9] Mr. Putnam? Ask the question again.

[10] BY MR. PUTNAM:

[11] Q: Sure. Won't you agree with me that if [12] the APS 3200 surge control system is in high-flow [13] mode, there is no relationship between the [14] parameter DELPQP and the operation of the surge [15] bleed valve?

[16] THE COURT: Do you have the same [17] objection?

[18] MR. HERRINGTON: Yes, Your Honor.

[19] THE COURT: Let me see you at [20] side-bar.

[21] (Side-bar conference.)

[22] THE COURT: I'm not sure that I [23] understand the basis for the objection.

[24] MR. HERRINGTON: He's got element D

Page 1579

[1] on the screen and he's acting as if — he seems to [2] be suggesting that he's asking something about [3] what the APS 3200 does would satisfy element D, [4] but he's not referring to element D, he's using [5] different words. He's using subtly changed words.

[6] THE COURT: Go ahead.

[7] MR. PUTNAM: Your Honor, I'm not [8] saying that it's element D, but certainly I can [9] make my argument or ask my questions to this [10] witness to try to suggest that what he will [11] concede based on his deposition the system does [12] meet element D, that's the essence of [13] infringement. It's perfectly proper [14] cross-examination for the witness.

[15] THE COURT: Overruled.

[16] (End of side-bar conference.)

[17] BY MR. PUTNAM:

[18] Q: Mr. Shinskey, let me actually take a step [19] back so we can do this in sequence. First of all, [20] would you agree with me that if the APS 3200 surge [21] control system is in low-flow mode, there is a [22] particular relationship between the 3200's DELPQP [23] parameter and the operation of the surge bleed [24] valve?

Page 1580

[1] A: I agree with that.

[2] Q: And would you agree with me that if the [3] APS 3200 surge control system is in high-flow [4] mode, there is no relationship between the [5] parameter

DELPQP and operation of the surge plead [6] valve?

[7] A: That's correct.

[8] Q: And when the APS 3200 surge control [9] system is in low-flow mode, it is the proportional [10] and integral control signals that control the [11] operation of the surge bleed valve; correct?

[12] A: Correct.

[13] Q: And conversely, when the APS 3200 is in [14] high-flow mode, the variations in the value of the [15] parameter DELPQP do not affect the operation of [16] the surge bleed valve; correct?

[17] A: Correct.

[18] Q: And it is by measuring the position of [19] the inlet guide vanes that the APS 3200 surge [20] control system insures that it does not go into [21] low-flow mode when it actually should be in [22] high-flow mode; correct?

[23] A: Correct.

[24] Q: Let me turn to another topic now. And

Page 1581

[1] that is the question of the flow-related [2] parameter.

[3] Now, the flow-related parameter — [4] let me take a step at a time.

[5] The parameter that the APS 3200 [6] measures is DELPQP; correct?

[7] That's the parameter that it [8] measures, right?

[9] A: Right.

[10] Q: Now, you said, you referred a number of [11] times in your testimony, I think both on Friday [12] and today, to the specific parameter in the [13] Honeywell patents and the specific parameter that [14] Sundstrand uses.

[15] Would you agree with me that none of [16] the six patent claims that are at issue in this [17] trial specify a particular type of flow-related [18] parameter?

[19] A: No, I wouldn't agree with that. As I [20] recall, Claim 8 of the '893 patent specifies a [21] flow-related parameter that was independent of [22] temperature.

[23] Q: That's a fair point and I should have [24] taken that into account.

Page 1582

[1] Let me address the first five and [2] then come back to Claim 8. And actually [3] Mr. Schlaifer, maybe we can put these up so the [4] jury can see it.

[5] Claim 4 of the '194 patent in clause [6] C just refers generally to a flow-related [7] parameters, correct?

[8] A: Yes.

[9] Q: And maybe, Mr. Schlaifer — it

actually [10] appears three times. So it doesn't say a [11] particular kind of flow-related parameter. It [12] just says the parameter must be related to flow; [13] correct?

[14] A: That's what it says.

[15] Q: And clause — Claim 8 of the '893 patent, [16] Mr. Schlaifer, if you could put that up, please. [17] I think you need to blowup D1. Has this issue as [18] you say, substantially independent of the [19] temperature of the compressed air, but beyond [20] that, it just says a flow-related parameter; [21] correct?

[22] A: That is substantially independent of the [23] temperature of the compressed air, yes.

[24] Q: Yes, sir. It does not talk about a

Page 1583

[1] specific type of pressure parameter, static [2] pressure or total pressure or anything of that [3] sort; correct?

[4] A: Correct.

[5] Q: And Claim 19 of the '893 patent, which is [6] the other independent or full claim, if [7] Mr. Schlaifer could put that up on the screen, [8] would you confirm for me that what claim 19(b) [9] says is a parameter related to the air flow rate; [10] correct?

[11] A: Yes.

[12] Q: Okay. Would you agree with me, sir, that [13] the APS 3200's DELPQP parameter is related to air [14] flow?

[15] A: The DELPQP parameter is a composite [16] parameter that is related to both flow and [17] compression ratio.

[18] Q: So I think what you're saying is that the [19] DELPQP is related to two things, it's related to [20] flow and it's related in your understanding to [21] compression ratio, correct?

[22] A: Yes.

[23] Q: Let me move to another topic.

[24] And that is the question of where

Page 1584

[1] the APS 3200 measures these parameters. As I [2] listened carefully, I think that was another one [3] of the issues that you were — or parts of the [4] patent claim that you were maybe taking issue with [5] during your testimony, is that right?

[6] A: That's right.

[7] Q: Okay. In the APS 3200, in the APS 3200 [8] in the Sundstrand product, there is a duct between [9] the compressor and the surge volume, correct?

[10] A: Yes.

[11] Q: What's a duct, is it sort of like a pipe [12] of some sort?

[13] A: It's a pipe.

[14] Q: And the parameter that the APS 3200 [15] measures, DELPQP is measuring the flow of the air [16] out of the compressor and into that duct; correct?
 [17] A: No.

[18] Q: Okay. Let me show you another document, [19] sir. PTX 910.

[20] MR. PUTNAM: Your Honor, may I [21] approach?

[22] THE COURT: Yes.

[23] BY MR. PUTNAM:

[24] Q: Do you have PTX 910 in front of you, sir?

Page 1585

[1] A: I have.

[2] Q: Okay. And do you recognize this, and [3] Mr. Schlaifer maybe you can blowup this area here, [4] the engineering specifications, what's called the [5] system requirement specification for the APS 3200?

[6] A: Yes, I do.

[7] Q: And you see this was created by APIC, [8] which now is the company that became Sundstrand [9] here?

[10] A: I see that.

[11] Q: And if you turn over, sir, to page 15 of [12] this document. Mr. Schlaifer has beaten me to it [13] and can you focus in on the start of the second [14] paragraph, and do you see where it says in this [15] Sundstrand document talking about the [16] surge control system, "the ratio of delta P over P shall [17] be used as an indication of discharge air flow [18] from the load compressor?"

[19] A: I see that.

[20] Q: Okay. And do you know from looking at [21] the documents as part of our work on this matter, [22] sir, that when it says D-E element, I'm sorry, [23] what it says delta P or that triangle P/P, that's [24] another way of writing this DELPQP P Q P parameter

Page 1586

[1] that we've been talking about?

[2] A: That's correct.

[3] Q: Now, would you agree with me that the APS [4] 3200 has sensors to measure the value of its [5] DELPQP in two different locations?

[4] A: Yes, the sensors are at two different locations.

[5] Q: And that's because they need to measure [6] the pressure at one place, and [7] the pressure, [10] the change in pressure between that first place [11] and the second place; correct?

[6] A: Correct.

[7] Q: This word "delta," which I gather engineers sometimes use the word "elta" to mean [15] difference; is that

right?

[8] A: That's right.

[9] Q: And actually, Mr. Schlaifer, can you put [18] that last one back up.

[10] The triangle, is that sort of an [20] engineering shorthand for the — for delta?

[11] A: That's a Greek capital letter, delta.

[12] Q: So where it says triangle P, another way [23] to say that would be delta P, correct?

[13] A: Correct.

Page 1587

[1] Q: And "delta" means, in this context, the [2] change between two places; right?

[2] A: The difference between two places, yes.

[3] Q: So in the APS 3200, they need to measure [5] pressure in one place and measure it in a second [6] place and then the delta P is the change in [7] pressure that the air experiences between those [8] two places; correct?

[9] A: Correct.

[10] Q: All right. Now, am I correct that the — [11] I want to ask you about the location of the second [12] of those pressure sensors, meaning the second of [13] the sensors that the air comes to as it's going [14] through the system. Okay, sir?

[15] A: Okay.

[16] Q: All right. Now, are you familiar with an [17] individual employed by Sundstrand named Peter [18] Suttie?

[19] A: Yes.

[20] Q: And have you spoken with Mr. Suttie as [21] part of your work on this matter?

[22] A: I believe I have.

[23] Q: And is it your understanding that [24] Mr. Suttie is the fellow over at Sundstrand who

Page 1588

[1] since 1995 has had overall technical [2] responsibility for the surge control system for [3] the APS 3200?

[4] A: I'll accept that.

[5] Q: Okay. And I think as I recall your [6] reports, sir, you actually read Mr. Suttie's [7] deposition as part of your work on this matter, [8] correct?

[9] A: I did.

[10] Q: All right. Let me ask Mr. Schlaifer to [11] put up a section of Mr. Suttie's deposition and [12] see if you recall reading this in forming your [13] opinions on this matter.

[14] This is from Mr. Suttie's [15] deposition of June 15th, 2000, pages 119 to 120. [16] He was asked:

[17] QUESTION: Am I correct that in the

[18] APS 3200, there are — or there is a duct between [19] the outlet of the load compressor and the inlet of [20] the airplane?

[21] ANSWER: Yes.

[22] QUESTION: And is the sensor for [23] measuring PS or static pressure, is that sensor [24] somewhere in that duct?

Page 1589

[1] ANSWER: Yes. [2] Did you review that testimony by [3] Mr. Suttie in forming your opinions in this [4] matter?

[5] A: Yes, I did.

[6] Q: Okay. Thank you. We're done with that.

[7] I want to move — I guess I'm all [8] the way up now to the dependent claims. We have [9] been talking about independent claims and [10] dependent claims and am I right that the dependent [11] claims — well, first of all, one happy [12] characteristic is they're a lot shorter than the [13] independent claims?

[14] A: Yes, I know that.

[15] Q: And is it your recollection that the [16] independent — I'm sorry, the dependent claims [17] that are at issue in this case are Claims 10 and [18] 11, which are dependent on Claim 8 of the '893 [19] patent, and Claim 23, which is dependent on Claim [20] 19 of the '893 patent?

[21] A: Yes, I understand that.

[22] Q: And Mr. Schlaifer, do you have a slide [23] with either Claim 10, or 10 and 11 together? [24] Great.

Page 1590

[1] And the start of Claim 10 has this [2] phrase, "the accessory power unit of Claim 8". Do [3] you see that, sir?

[4] A: I do.

[5] Q: Okay. And it's your general [6] understanding, isn't it, that that means that to [7] infringe Claim 10, the APS 3200 would have to do [8] everything that's set forth in Claim 8, and then [9] this extra thing that's added by Claim 10; is that [10] right, sir?

[11] A: That's right.

[12] Q: Okay. Now, let me ask you about the [13] extra thing that's added here by Claim [14] 10. "Control means including parallel proportional [15] and integral controllers coupled to a summer [16] having an outlet connected to said surge bleed [17] means."

[18] The APS 3200 meets that part of [19] Claim 10, doesn't it, sir?

[20] A: Yes, it does.

[21] Q: So when you testified with Mr. Herrington [22] that there was no infringement of Claim 10, what [23] you were hanging your hat on was this [24] cross-reference to Claim 8, correct?

Page 1591

[1] A: It was based on no infringement of Claim [2] 8, yes.

[3] Q: If the jury were to conclude that all of [4] Claim 8 was present and infringed, then you would [5] concede that Claim 10 would be infringed; correct?

[6] A: Yes.

[7] Q: Let me ask you the same questions about [8] Claim 11.

[9] Again, on Claim 11, you see that the [10] introduction has this cross-reference to Claim 8; [11] correct?

[12] A: Correct.

[13] Q: Now, what Claim 11 adds is, "Wherein said [14] sensing means include at least one pressure to [15] electric transducers and said comparator means and [16] said control means comprise electronic [17] components."

[18] Would you agree with me that the APS [19] 3200 meets that part of claim 11?

[20] A: I do.

[21] Q: The APS 3200 is an electronic surge [22] control system; correct?

[23] A: Correct.

[24] Q: And so again, when you testified, I guess

[3] Q: And Claim 23 has this reference to Claim [4] 19 because Claim 23 is dependent on Claim 19; [5] correct?

[6] A: Correct.

[7] Q: All right. And what claim 23 adds, it [8] says, "Wherein said control system is [9] electronic." That's the new part added by Claim [10] 23; correct?

[11] A: Correct.

[12] Q: And I think we just did this as part of [13] talking about Claim 11. You concede, don't you, [14] that the APS 3200 surge control system, that [15] that's an electronic surge control system?

[16] A: It is.

[17] Q: So when you testified this morning that [18] Claim 23 wasn't infringed, that was based on your [19] conclusion about Claim 19; correct?

[20] A: Correct.

[21] Q: And again, if the jury were to conclude [22] that Claim 19 were infringed, and that the APS [23] 3200 does every one of the steps that Claim 19 [24] does, well, then you would agree that Claim 23 is

Page 1594

[1] infringed as well; correct?

[2] A: Correct.

[3] Q: I think that brings us now to the [4] validity part of your examination.

[5] Now, I think we mentioned it [6] earlier, when you were first retained or first [7] contacted by Sundstrand back in May of 2000, the [8] first issue that they brought up was this issue of [9] patent validity; correct?

[10] A: Correct.

[11] Q: And let me ask you the same question [12] about validity that I asked you about [13] infringement.

[14] Am I correct that when Sundstrand [15] hired you, you understood that your job was not to [16] form an independent opinion on whether or not the [17] Honeywell patents were valid, but rather it was [18] for you to come in and express the opinion that [19] the patents were in fact invalid?

[20] A: I fail to see a distinction between the [21] two sides of the "or" in that question.

[22] Q: Okay. So would you agree with me that [23] one-way — well, let me ask it this way.

[24] Did you understand that the purpose

Page 1596

[1] you the materials?

[2] A: It was after an initial call.

[3] Q: What did he fax you?

[4] A: He faxed me a copy of the '194 patent.

[5] Q: Okay. What else did he fax you?

[6] A: It might have been the Kempe paper, I [7] believe that was perhaps the other document that [8] he faxed me initially.

[9] Q: Okay. Anything else that you remember [10] him faxing you initially?

[11] A: Not that I recall at the moment.

[12] Q: So the Kempe paper, and I'm come to this [13] in a little bit more detail in a minute, that's [14] something that Mr. Koskowski put on the fax [15] machine to you right after he first called you up [16] and asked if you wanted to be involved in the [17] case, is that right?

[18] A: I'm not sure what the time lapse was [19] between his initial call and sending the — faxing [20] the documents.

[21] Q: Okay. Whenever it was that you got your [22] first chunk of documents from Sundstrand's [23] attorneys, that Kempe paper was one of the things [24] that came to you; correct?

Page 1597

[1] A: I believe it was, yes.

[2] Q: And that was something that the [3] Sundstrand attorneys provided to you; correct?

[4] A: Yes, it was.

Page 1593

[1] we have got on this Elmo there, sir?

[2] A: Yes, I do.

In The Matter Of:

*Honeywell International Inc., et al. v.
Hamilton Sundstrand*

*Trial Volume Number 7
February 13, 2001*

*Hawkins Reporting Service
712 King Street
Wilmington, DE 19801
(302) 658-6697*

*Original File 021301FC.V1, 319 Pages
Min-U-Script® File ID: 3579518546*

Word Index included with this Min-U-Script®

[3] A: The White reference is a broad [4] reference. It does cover many aspects of [5] controlling centrifugal compressors. I would [6] agree with that.

[7] Q: Okay. And would you agree with me that [8] therefore it does not focus closely on the type of [9] system which would be such as those used in the [10] patents?

[11] A: I don't think I'd agree with that [12] statement.

[13] Q: Okay. Do you have your deposition still [14] up there, sir, the second day of your deposition?

[15] A: Yes.

[16] Q: Can you turn, please, to page 280 of your [17] deposition, starting at line nine.

[18] Let me ask Mr. Schlaifer to put it [19] up on the board. Page 280, starting at line nine [20] in your deposition let me ask you, were you asked [21] the following question and did you give the [22] following answer.

[23] "QUESTION: Am I right that it is [24] your view that the White reference is less close

Page 1663

[1] to the inventions found in the '893 and '194 [2] patents, than are the Warnock and Kempe [3] references?

[4] ANSWER: I would agree that White in [5] attempting to cover a very broad range of possible [6] operating conditions does not focus closely on the [7] type of system which would be, such as those used [8] in the patents."

[9] Sir, were you asked that question [10] and did you give that answer in your deposition?

[11] A: I did give that answer, yes.

[12] Q: Thank you.

[13] All right. Let me turn now to the [14] article by Mr. Fallin and the chapter by yourself, [15] what was referred to as the Shinskey — I think it [16] was referred to by Mr. Herrington as the [17] Shinskey/Fallin reference. Do you remember that [18] testimony, sir?

[19] A: Yes.

[20] Q: And do you have either of those articles [21] or should I provide you with copies? Why don't I [22] give you copies.

[23] A: I don't believe I have either of them.

[24] Q: Okay.

Page 1664

[1] For the record, the energy [2] conservation through control reference by yourself [3] as PTX 851. And here is the Fallin reference as [4] well.

[5] Now, the Fallin article makes no [6] mention of the control modes used by

the surge [7] controller; correct?

[8] A: That's correct.

[9] Q: Okay. So when I say "control modes," [10] that's what the jury has heard referred to [11] sometimes in the case of the Honeywell patents as [12] being proportional plus integral control; right?

[13] A: Right.

[14] Q: And there are other types of control that [15] exist out there in the controls world beyond [16] proportional and integral control; correct?

[17] A: That's correct. However, proportional [18] plus integral control is by far the most common.

[19] Q: Okay. But in the Fallin article, there [20] is no discussion of the control modes, whatever [21] type they might or might not be; correct?

[22] A: Correct.

[23] Q: Okay. And the Fallin article doesn't [24] discuss auxiliary power units; correct?

Page 1665

[1] A: Correct.

[2] Q: And the Fallin article doesn't discuss [3] any aerospace application; correct?

[4] A: Correct.

[5] Q: And the article, or the chapter by [6] yourself, can I call this the Shinskey article, is [7] that okay?

[8] A: Yes.

[9] Q: I don't mean any disrespect, but we've [10] just been using people's last names, if I refer to [11] this as the "Shinskey reference," is that okay?

[12] A: Okay.

[13] Q: That Shinskey reference, that doesn't [14] mention APUs, auxiliary power units either; [15] correct?

[16] A: Correct.

[17] Q: And the Shinskey reference doesn't [18] mention any aerospace application; correct?

[19] A: Correct.

[20] Q: Now, Fallin is a fellow who worked at the [21] time at the Bethlehem Steel Corporation; right?

[22] A: Right.

[23] Q: And the Fallin reference is talking about [24] a blast furnace at a steel making plant; correct?

Page 1666

[1] A: Right.

[2] Q: And you may have said this to [3] Mr. Herrington, but just to be clear, Fallin does [4] not disclose an electronic control system; [5] correct?

[6] A: I don't believe that's mentioned in [7] Fallin.

[8] Q: So the idea of having an electronic [9] control system, that's not mentioned in the Fallin [10] article; right?

[11] A: I don't believe it is.

[12] Q: Okay. And now, in an APU application, [13] like the patents, the goal is to operate the [14] compressor very close to the surge limit; correct?

[15] A: Correct.

[16] Q: Okay. And would you agree with me that [17] in the vast majority of other types of [18] compressors, the compressor is nearly always [19] operated away from the surge region?

[20] A: For economic reasons, it doesn't make [21] sense to compress gas that you're not using, and [22] therefore that tends to be the case.

[23] Q: Okay. So you'd agree with me, if I [24] understand what you're saying, that for APUs you

Page 1667

[1] operate them very close to the surge region, the [2] allowable surge limit, but for the vast majority [3] of other types of compressors, they are operated [4] nearly always away from the surge limit; correct?

[5] A: The APUs not always operate close to the [6] surge region, they sometimes operate well away [7] from the surge region, as do other compressors in [8] other applications.

[9] Q: Let's take it in steps, then, because [10] it's an important concept.

[11] First of all, is it your [12] understanding that APUs for use in commercial [13] aircraft are typically designed to operate very [14] close to the allowable surge limit?

[15] A: I wouldn't accept that statement, not [16] compressors designed to operate close to the surge [17] limit, no.

[18] Q: Well, I want to make sure you're clear on [19] the question I'm asking you, now, sir. Is it your [20] understanding that APUs for use in commercial [21] aircraft are typically designed to operate very [22] close to the allowable surge limit?

[23] A: That's too general a statement, APUs are [24] designed for many things. I mean, APU you're

Page 1668

[1] talking about the generator, you're talking about [2] the power unit, and so forth, whereas the surge is [3] specifically associated with the compressor.

[4] Q: Sir, I don't think you have a copy up [5] there of your first day of deposition; is that [6] right, I think you just have the second day so [7] far?

[8] A: I only have one deposition.

[9] Q: Let me give you another one. All

in [24] Tucson before I graduated college and then once I [22] graduated I stayed on with them for a short time [23] thereafter. [24] Q: And that AlliedSignal is what is now

[1] known as Honeywell?

[2] A: Correct.

[3] Q: Did you, while during the [4] approximately how long after graduating from [5] college were you at AlliedSignal?

[6] A: After I graduated, I probably was there [7] for a year.

[8] Q: And I take it you worked at Allied also [9] as a — while you were still a student in college?

[10] A: Correct.

[11] Q: At any point during your employment with [12] AlliedSignal in Tucson, Mr. Greubel, did you have [13] any role in designing or developing or [14] manufacturing their APU products?

[15] A: No.

[16] Q: What products of AlliedSignal's did you [17] work on, have a significant role in connection [18] with?

[19] A: Well, when I was a student engineer for a [20] period of my two years there, I worked in a [21] reliability group, so I wasn't really involved [22] with any kind of particular product. It was just [23] electronic controllers that I was helping out [24] with, database entry, printing out reports and

Page 1714

[1] plotting data, things of that nature.

[2] After I graduated and went full-time [3] as a degree in engineering, I worked on a database [4] program for the electrical engineers. And I also [5] worked on primarily cabin pressure control systems [6] after that.

[7] Q: What are "cabin pressure control [8] systems," Mr. Greubel?

[9] A: It's basically a system that keeps the [10] pressure in an aircraft cabin comfortable so that [11] when you're going up to 40,000 feet your ears [12] don't pop. It just keeps the cabin at a [13] comfortable pressure.

[14] Q: Do those cabin pressure control systems [15] have anything to do with APUs?

[16] A: No.

[17] Q: I think you mentioned that when you were [18] a student employee and then perhaps later, you [19] also had some job responsibilities with entering [20] information in a database; is that right?

[21] A: Right.

[22] Q: And did you enter any information

in a [23] database that had anything to do with APUs?

[24] A: No. They were just electronic components

Page 1715

[1] that might have found themselves into some APU [2] product way down the road, but it was nothing with [3] APUs.

[4] Q: Now, was any of the work that you did [5] while you were at what's now known as Honeywell [6] related in any way to controlling surge on an [7] auxiliary power unit?

[8] A: No, not at all.

[9] Q: Before you joined Sundstrand in the [10] summer of 1990, Mr. Greubel, did you have any [11] experience at all in designing or developing a [12] surge control system?

[13] A: No.

[14] Q: What led you to move from Tucson and work [15] at AlliedSignal to join Hamilton Sundstrand in San [16] Diego, California in the summer of 1990, [17] Mr. Greubel?

[18] A: Sundstrand was looking for engineers, and [19] I had grown up in Tucson and I had just graduated [20] recently. I decided I wanted to try something [21] different live in a different area of the [22] country. I was still single, so I thought that [23] would be a good idea.

[24] Also AlliedSignal was having

Page 1716

[1] problems with layoffs and morale wasn't that good, [2] so it was kind of the two main reasons why I [3] decided to take the opportunity to move to San [4] Diego.

[5] Q: When you got to San Diego and joined [6] Sundstrand, do you recall the first project you [7] were assigned to?

[8] A: Yes, I was put on the APS 3200 program [9] and I was mainly cast with working with computer [10] programs, modeling of the control system and the [11] engine for the APS 3200.

[12] Q: At some point were you asked to work on [13] the development of the surge control system being [14] developed for the APS 3200?

[15] A: Yes.

[16] Q: And approximately when did that happen?

[17] A: Probably within a few months after [18] starting there.

[19] Q: So sometime in 1990?

[20] A: Yeah.

[21] Q: Now, today, are you generally familiar [22] with how the surge control on the APS 3200 has [23] worked for the period at least since February 3rd, [24] 1999?

Page 1717

[1] A: Yes.

[2] Q: Now, going back to the fall of 1990, [3] withdrawn, let me ask you another question.

[4] Today, do you have responsibilities [5] for the 3200 or have you been assigned to other [6] products?

[7] A: No, I have other programs now.

[8] Q: But back in 1990 when you were first [9] asked to start helping out on developing the surge [10] control system for the APS 3200, at that point had [11] Hamilton Sundstrand determined whether to have a [12] single or varying set point for the surge control [13] logic?

[14] A: No.

[15] Q: And had it decided at that point to vary [16] the set point in accordance with air inlet [17] temperature?

[18] A: No.

[19] Q: Had it decided at the point you were [20] asked to join the team to use proportional and [21] integral controls?

[22] A: That would have been decided already [23] That's a simple control loop, so that would have [24] been in place already.

Page 1718

[1] Q: At the point in 1990 that you first [2] started working on developing the surge control [3] logic, had Hamilton Sundstrand become aware that [4] there was a double-solution issue with respect to [5] the particular measurement of air in the [6] compressor?

[7] A: At the point that I started?

[8] Q: Yes.

[9] A: No.

[10] Q: And is it fair to say not having yet [11] identified that there was that double solution [12] issue, it hadn't yet figured out how to solve the [13] double-solution issue?

[14] A: Correct.

[15] Q: Had Sundstrand, at the time in 1990 when [16] you first started working on the surge control [17] system, decided to have a test of high flow versus [18] low flow as part of the overall system?

[19] A: Back when I started?

[20] Q: Yes.

[21] A: No, because we didn't know about the [22] double solution at that point.

[23] Q: And had it decided at that point what [24] logic should be used to determine whether the

Page 1719

[14] system was in high or low flow?

[25] A: No, again, because we didn't re-

[22] THE COURT: All right. Ladies and [23] gentlemen, I've regained my sense of time. We'll [24] let Mr. Schulman proceed.

Page 1738

[1] MR. SCHULMAN: Thank you, Your [2] Honor.

[3] CROSS-EXAMINATION

[4] BY MR. SCHULMAN:

[5] Q: Welcome back, Mr. Greubel.

[6] A: Thanks.

[7] Q: Earlier you testified about some of your [8] work on the APS 3200; is that correct?

[9] A: Yes.

[10] Q: I want to ask you some questions about [11] the APS 3200. Am I correct that the APS 3200 uses [12] what's called a Delta P over P?

[13] A: Correct.

[14] Q: And another word or another way of [15] referring to Delta P over P is DELQP, am I [16] correct?

[17] A: Yeah.

[18] Q: Now, Delta P over P, sir, that measures [19] flow, am I correct?

[20] A: Well, it's a parameter. It's Delta [21] pressure over another pressure, which I don't know [22] what it measures exactly, but it's an input to our [23] surge control logic and that's what we control to [24] is the Delta P over P.

Page 1739

[1] Q: And Delta P over P measures air flow; [2] correct?

[3] MR. ZIEGLER: Objection. Your [4] Honor. That's the exact same question he just [5] answered.

[6] THE COURT: Overruled. Go ahead.

[7] Q: And Delta P over P measures air flow; [8] correct?

[9] A: I guess it could be interpreted that way [10] I know directly, but it's a double solution, so [11] it's not a — it's not measured — it's not [12] measuring air flow as I would normally think of [13] it no. It has different characteristics. It's a [14] function of pressures.

[15] But I can't really describe exactly [16] how it sorts itself out, though, I'm not an expert [17] in air flow.

[18] Q: Mr. Greubel, this isn't the first time [19] you've testified in this case, am I correct? In [20] other words, you had your deposition taken in this [21] case in June of 2,000?

[22] A: Right.

[23] Q: And your deposition was taken in San [24] Diego, California near where you work; is that

[2] A: Correct.

[3] Q: And at your deposition you were [4] represented by counsel; is that correct?

[5] A: Correct.

[6] Q: In fact, Mr. Small was with you at [7] deposition?

[8] A: Uh-huh.

[9] Q: And just like today at your deposition, [10] there was a court reporter taking down questions [11] that were asked and your answers; is that correct?

[12] A: Correct.

[13] Q: And just like today, at that deposition, [14] you swore to tell the truth, the whole truth and [15] nothing but the truth; is that correct?

[16] A: That's correct.

[17] Q: And after your deposition was completed, [18] you again declared under penalty of perjury that [19] you had read a transcript of your deposition and [20] you had made any corrections necessary; is that [21] correct?

[22] A: Yes.

[23] Q: And that was on July 24th, 2,000?

[24] A: Correct.

[7] THE WITNESS: Okay. Sure.

[8] THE COURT: Sorry, Mr. Schulman, go [9] ahead.

[10] BY MR. SCHULMAN:

[11] Q: And you understand that the APS 3200 uses [12] a set point?

[13] A: Yes.

[14] Q: Sir, the position of the inlet guide [15] vanes may affect the parameter Delta P over P that [16] is sensed from the load compressor and measured [17] against the set point; am I correct?

[18] A: I'm sorry. Are you reading from the [19] deposition or is this another question?

[20] Q: It's another question, sir. Do you want [21] me to repeat it?

[22] A: Would you repeat it, please.

[23] Q: Sorry. The position of the inlet guide [24] vanes may affect the parameter Delta P over P

Page 1743

[1] that's sensed from the load compressor and [2] measured against the set point; am I correct, sir?

[3] A: That's correct.

[4] Q: I'm going to move on another subject, [5] Mr. Greubel. Let me just make sure we have our [6] time line in our mind. You began at Honeywell in [7] the spring of 1988; correct?

[8] A: Yeah. Yes.

[9] Q: And you left Honeywell in June of 1990?

[10] A: Correct.

[11] Q: And about ten days later, two weeks [12] later, in early July of 1990, you were hired by [13] Sundstrand?

[14] A: Correct.

[15] Q: Now, it's correct, sir, is it not, that [16] Sundstrand was aware of your prior work experience [17] when they hired you?

[18] A: Yes, that would have been in my resume [19] that they would have hired me based on —

[20] Q: So Sundstrand knew that you had been at [21] Honeywell?

[22] A: Right.

[23] Q: And I'm correct, sir, that Sundstrand [24] never asked you if you had any confidential

Page 1744

[1] obligations to third parties?

[2] A: That they never asked me. I don't know [3] that that's the case. I signed a [4] of papers [14] and reviewed some papers [5] that were presented to me [15] during my hiring phase in the first couple of [16] days.

[7] I'm not sure exactly what was [8] contained in those papers. I couldn't

Page 1740

[1] correct?

In The Matter Of:

*Honeywell International Inc., et al. v.
Hamilton Sundstrand*

*Hearing Volume Number 10
February 16, 2001*

*Hawkins Reporting Service
715 N. King Street, Suite 3
Wilmington, DE 19801
(302) 658-6697 FAX: (302) 658-8418*

*Original File 021601FC.V1, 166 Pages
Min-U-Script® File ID: 2868977548*

Word Index included with this Min-U-Script®

[12] Plaintiff's Exhibit 101, B-factor, [13] this is a critical factor that must be resolved [14] for the V 3.0.

[15] Plaintiff's Exhibit 107, that shows [16] they're having a problem figuring out this whole [17] problem.

[18] Plaintiff's Trial Exhibit 916, the [19] pressure ratio test was substituted for the [20] B-factor test in April 1995. That's when they [21] went to the Honeywell system. That solved the [22] problem. You didn't see anymore memos about any [23] other problems after that.

[24] Now, it's not necessary that we show

Page 2539

[1] you how they got to the surge control system they [2] got. We don't have to prove they copied us. [3] That's not part of patent infringement. We'll get [4] there in a minute, but I don't have to prove that [5] they copied us to get there. All we have to prove [6] is that they're using our system.

[7] I thought it might be helpful for [8] you to understand how did they get to where they [9] were, how did this happen? And the evidence shows [10] you how it happened.

[11] Now, let's talk about infringement [12] and the instructions the Judge gave yesterday. [13] And among those instructions, if somebody uses [14] your invention without your permission whether [15] they know you have a patent on it or not, it's an [16] infringement, whether they copied it from you or [17] not, it's an infringement.

[18] But there is another part of the [19] instruction this Judge gave you yesterday, which [20] is critically important because they have [21] essentially two, maybe three excuses for why they [22] don't infringe.

[23] The first one is, remember you heard [24] all about it, we don't use that all the time.

Page 2540

[1] That only goes into effect if it's part of the [2] high-flow/low-flow test, and if it's on the other [3] side of the double bell curve and the double [4] solution problem and it doesn't get used very [5] often so it's not infringement.

[6] Well, the Judge's instructions [7] solved that problem. A person or business entity [8] infringes a patent if the product, apparatus or [9] method is described by at least one claim in the [10] patent some of the time, but not always. They [11] can't get away with saying, well, it doesn't do [12] that all the time. It's still infringement. So [13] that answers one excuse.

[14] What's their other excuse? [15] Temperature. You heard all about temperature. [16] They use temperature to set the set point or to [17] adjust the set point.

Mr. Ziegler talked about [18] his wife setting the temperature in their [19] apartment or house. I never heard any evidence [20] about that, but he did say something about that in [21] his opening and they're really big on [22] temperature.

[23] But what's temperature got to do [24] with this case? They're trying to say temperature

Page 2541

[1] is the way they do it. The evidence shows [2] something differently, but they do use temperature [3] some of the time. But that's why another [4] instruction becomes critically important and [5] that's the instruction on comprising, open-ended [6] or comprising terms.

[7] Every single one of the patents in [8] this case has the word "comprising" in it. [9] Comprising is not a word that most [10] people use every day, just us patent lawyers use [11] that word. So the Judge defined what comprising [12] means. And what comprising means, just like I [13] told you he would in the opening, I talked about [14] this in my opening you may recall and I told you [15] he was going to say this and he does, and he did [16] yesterday, and it says, Comprising means in order [17] to infringe you have got to have all of the [18] elements of the claim but it's Okay to have extra [19] ones.

[20] Additional elements or steps is [21] Okay. Additional features or method steps is [22] Okay. It doesn't avoid infringement. So that [23] takes care of temperature.

[24] This isn't a case about instead of.

Page 2542

[1] It's a case about in addition to. And "in [2] addition to" isn't good enough, because the law [3] says adding something in doesn't avoid [4] infringement. This isn't me saying this, this is [5] the instructions about the law.

[6] So the fact that they use [7] temperature in addition to is totally irrelevant.

[8] Now, I showed you these at the [9] beginning of the case. These are the original [10] patents. You got copies of them in your book, [11] they'll be — the originals won't be in the back [12] because they keep these in a vault at Honeywell.

[13] And it's important to remember why [14] Hamilton Sundstrand has a higher burden of proof [15] in their part of the case. And that's because the [16] patent office has already looked at all this [17] stuff.

[18] It took them two years to issue one [19] of these and almost three years to get the next [20] one. Total time. One was in about two years, the [21] other one was in

about three years.

[22] So they took a pretty careful look. [23] And what they did is they said the claims that are [24] in here are entitled to a patent.

Page 2543

[1] Now, you'll remember they kept [2] putting up these charts that had looked like a [3] thousand words on it and said remember the patent [4] office rejected these claims.

[5] Well, it's interesting because they [6] say the patent office rejected certain of these [7] claims. Well those claims aren't in here. The [8] ones that the patent office rejected aren't in [9] here. The ones that the patent office granted are [10] in here.

[11] And of course it's another [12] interesting phenomenon that when they want to talk [13] about what the patent office did that they liked, [14] like they rejected some of the claims, not the [15] claims that are involved here, but other claims, [16] they speak glowingly of the patent office.

[17] But when they get to their arguments [18] about invalidity on anticipation and obvious [19] necessary grounds, and we'll talk about those in a [20] minute, they say oh, the patent office didn't know [21] what they were doing. They spent two or three [22] years looking at all this stuff and they blew it.

[23] Isn't that interesting? They take [24] different positions depending on whether they like

Page 2544

[1] what the patent office did or not. It seems to me [2] you got to go one way or the other.

[3] Now, on the subject of infringement, [4] we presented expert testimony, they presented [5] expert testimony, and it's really up to you to [6] decide which of the experts you believe, which of [7] the experts you trust.

[8] But we presented something more than [9] expert testimony. We presented testimony from [10] their expert. We got him to admit to some things [11] and we also presented some testimony of some of [12] their engineers and we presented testimony of [13] their documents that admitted about certain of [14] these things and how they worked before we get to [15] court.

[16] And you can decide whether you want [17] to trust the documents that they wrote before they [18] got to court or whether you trust what they said [19] when they got to court.

[20] Now, the first claim that was at [21] issue was Claim 4 of the '194 patent. That's the [22] method claim. And we claimed that that claim was [23] infringed both literally, and under the doctrine [24]

Hamilton Sundstrand**Case 1:99-cv-00309-GMS**

of equivalents.

Document 421-15 Filed 05/01/2006 Page 13 of 13

Page 2545

[1] And as I predicted in my opening [2] statement, I said they were only going to object [3] to a couple of the elements of this claim and that [4] was true. They admitted that they meet some of [5] the elements and they just argued about a couple.

[6] And one of the ones they argued [7] about was element C which talks about a [8] flow-related parameter and whether it gets [9] measured in the duct or not.

[10] And again, we produced expert [11] testimony that this claim was literally [12] infringed. But in addition, we got Mr. Shinskey, [13] their expert, actually Mr. Putnam did, to agree on [14] the 12th of February that the flow-related [15] parameter is DELPQP.

[16] Remember we have DELPQP. We have [17] Delta P over P; and we have various different P [18] over P. Those are the flow-related parameters. [19] We call them different things at different times. [20] But it's basically DELPQP and Delta P over P are [21] the flow-related parameter.

[22] And Mr. Shinskey admitted in [23] response to a question by Mr. Putnam.

[24] **QUESTION:** So I think what you're

it's not that way all the time, it only does it [4] that way some of the time. Part-time infringement [5] is still infringement. The instructions say [6] that.

[7] Element D, another one of the few [8] disputes that they go through. Mr. Shinskey [9] admitted that the APS 3200 surge control system, [10] this is that one about adjusting the relationship, [11] he stated that the system of the APS 3200 adjusts [12] the relationship between the magnitudes of the [13] integral and proportional control signals and the [14] magnitudes of the parameter variations as a [15] function of the position of inlet guide vanes. [16] That's a mouth full but he admitted that.

[17] Here is the testimony, it's on the [18] 12th of February again at pages 1579 to 1580. In [19] the APS 3200, the surge point is a factor, a [20] function of inlet guide vane position. He [21] admitted that.

[22] So that's proof. [23] Mr. Greubel — maybe we can go on to [24] Mr. Greubel also, I think we made a point with

Page 2548
[1] respect to that one, please Mr. Schlaffer.

[2] Mr. Greubel's testimony on the 13th [3] of February where he admits that the inlet guide [4] vanes may affect the parameter Delta P over P [5] that's sensed from the load compressor and [6] measured against the set point, am I correct, [7] sir?

[8] **ANSWER:** That's correct. [9] So that's literal infringement. We [10] also improved infringement under the doctrine of [11] equivalents.

[12] What's the doctrine of equivalents? [13] The Judge talked about that yesterday. Let's talk [14] about it for a minute. The doctrine of [15] equivalents is a situation where if somebody makes [16] a change that's not substantial, so they're not [17] doing exactly what the claim talks about, but what [18] they do is not substantially different, that's [19] infringement under the doctrine of equivalents.

[20] The whole point of that is to try to [21] avoid having somebody sort of sneak around the [22] edges.

[23] And the law provides that if the [24] differences between what they do and what the

Page 2549
[1] patent claim calls for are not substantial, then [2] infringement exists under the doctrine of [3] equivalents.

[4] This is in the instructions that you [5] have, number 3.5.3.

[6] Now, did we prove that? [7] Mr. Shinskey on cross-examination again to [8] Mr. Putnam admitted that the difference are not [9] substantial. You just

saw the evidence that Delta [10] P over P or DELPQP is related to inlet guide vane [11] position. The differences are not substantial.

[12] They use a different parameter. [13] They don't use exactly the same parameter that's [14] called for by the claims, but they use the exact [15] same one as far as literal infringement is [16] concerned and they use something that's not [17] substantially different as far as doctrine of [18] equivalents is concerned.

[19] And remember the evidence that the [20] surge point of the APS 3200 is based in part on [21] inlet guide vane position, it's related to inlet [22] guide vane position. So remember we were talking [23] about literal infringement and doctrine of [24] equivalents.

Page 2550

[1] Mr. Putnam is concerned that [2] Mr. Ziegler may stand up and say, well, you said [3] that, Mr. Shinskey said that, but you didn't [4] show. So why don't we put that up so we can say [5] that we showed it. And I don't want you to think [6] that we're pulling one over on you. It's page [7] 1579.

[8] You had up part of it before and I [9] sort of skipped over it in my enthusiasm.

[10] And I want to — I think that's — [11] can we go back a little bit? I can put it up on [12] the Elmo, right, that way there won't be any [13] dispute about whether I read it properly.

[14] I'll do everything fair and square.

[15] First of all, would you agree with [16] me that if the APS 3200 surge control system is in [17] low-flow mode, there is a particular relationship [18] between the 3200's DELPQP parameter and the [19] operation of the surge bleed valve?

[20] **ANSWER:** I agree with that.

[21] **QUESTION:** And would you agree with [22] me that if the APS 3200 surge control system in [23] the high-flow mode, there is no relationship [24] between the parameter DELPQP and the operation of

Page 2551

[1] the surge bleed valve. — I think that should be [2] bleed valve, not bleed valve — that is correct, [3] and when the APS 3200 surge control system is in [4] low-flow mode it is the proportional and integral [5] control signals that control the operation of the [6] surge bleed valve, correct?

[7] **ANSWER:** Correct.

[8] **QUESTION:** And conversely when the [9] APS 3200 is in high-flow mode, the variations in [10] the value of the parameter DELPQP do not affect [11] the operation of the surge bleed valve, correct?

[12] **ANSWER:** Correct.

Page 2547

[1] Mr. Muller.

[2] Remember, even if they argue, well, [3]